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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,600	09/24/2003	Angela M. Belcher	027053-0109	1528
23533	7590	03/20/2006	EXAMINER	
STEPHEN B MAEBIUS FOLEY AND LARDNER 3000 K STREET N W SUITE 500 WASHINGTON, DC 20007-5109			TRAN, MY CHAU T	
			ART UNIT	PAPER NUMBER
			1639	

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/668,600	Applicant(s) BELCHER ET AL.	
	Examiner MY-CHAU T. TRAN	Art Unit 1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-159 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-159 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Application and Claims Status

1. Claims 1-159 are pending.

Election/Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-29 and 112-121 drawn to a fabricated biofilm storage device/self-supporting film, classified in class 435, subclass 283.1.
 - II. Claims 30-45, drawn to a method of fabricating a biofilm storage device, classified in class 436, subclass 518.
 - III. Claims 46-52, drawn to a kit, classified in class 435, subclass 810.
 - IV. Claims 53-73, drawn to a hybrid fabricated biofilm storage device, classified in class 435, subclass 174.
 - V. Claims 74-93, drawn to a viral film, classified in class 435, subclass 176.
 - VI. Claims 94-111, drawn to a method of forming a viral film, classified in class 435, subclass 238.
 - VII. Claims 122-125, drawn to a method for improving the activity of a biofilm storage device stability and long term, classified in class 436, subclass 519.
 - VIII. Claims 126-129, drawn to a method to visualize the structure and function of a biological material, classified in class 436, subclass 164.

Art Unit: 1639

- IX. Claims 130-137, drawn to a method of forming viral thin films for a storage device that retain the ability of the viral particles to infect a bacterial host, classified in class 435, subclass 325.
- X. Claims 138-146, drawn to a storage device with liquid crystalline viral film, classified in class 257, subclass 40.
- XI. Claims 147-149, drawn to a method of making a storage device, classified in class 438, subclass 99.
- XII. Claims 150-155, drawn to a storage device that binds to streptavidin protein units, classified in class 435, subclass 7.1.
- XIII. Claims 156-159, drawn to a method of forming a storage device with a phage display library, classified in class 435, subclass DIG 47.

The inventions are distinct, each from the other because of the following reasons:

3. Inventions of Groups I, III-V, X, and XII are directed to related products. The related inventions are distinct if the inventions as claimed do not overlap in scope, i.e., are mutually exclusive; the inventions as claimed are not obvious variants; and the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect. See MPEP § 806.05(j). In the instant case, the related inventions are distinct because they have materially different design, i.e. different structural features. For example, Group I require the feature of only a biologic material. Group III require the feature combination of a container and a biologic material. Group IV require the feature combination of a substrate, a biologic material, and an inorganic material. Group V require the feature of phage particles. Group X requires the feature of anisotropic viral particles. Group XII require the feature

Art Unit: 1639

combination of a viral film and streptavidin protein units. These structural features result in different design that has different function and/or effect. Consequently, the related inventions are distinct and the restriction among these groups is proper.

4. Inventions of Groups II, VI-IX, XI, and XIII are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions are not disclosed as capable of use together and they have different modes of operation and effects, i.e. using different steps, requiring different reagents and/or producing different results. For example, Group II requires the steps of applying a biologic material to a substrate with a contacting surface. Group VI requires the steps of removing solvent so that the phage particles form a film. Group VII requires the steps of including a storage solution in the biofilm storage device that improves the stability and long-term activity of the biofilm storage device. Group VIII requires the steps of monitoring light properties of the biological material. Group IX requires the steps of removing solvent from a concentrated suspension of viral particles to form the viral thin film on a substrate. Group XI requires the steps of casting a film of viral particles under concentration conditions that provide for a chiral smectic C phase in the film. Group XIII requires the steps of panning to select phage that specifically bind to streptavidin. These steps require different reagents and producing different results. Consequently, the different inventions are not disclosed as capable of use together and they have different modes of operation and effects, and the restriction among these groups is proper.

Art Unit: 1639

5. Inventions of Group II (process) and the product of either Groups I, III-V, X, or XII are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as the method of plating or any one of the methods from Groups VI-IX, XI, or XIII. Thus, the inventions are distinct and the restriction between these groups is proper.

6. Inventions of Group VI (process) and the product of either Groups I, III-V, X, or XII are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as the method of injection molding or any one of the methods from Groups II, VII-IX, XI, or XIII. Thus, the inventions are distinct and the restriction between these groups is proper.

7. Inventions of Group VII (process) and the product of either Groups I, III-V, X, or XII are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and

Art Unit: 1639

materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as the method of freeze-drying or any one of the methods from Groups II, VI, VIII-IX, XI, or XIII. Thus, the inventions are distinct and the restriction between these groups is proper.

8. Inventions of Group VIII (process) and the product of either Groups I, III-V, X, or XII are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as the method of freeze-drying or any one of the methods from Groups II, VI, VII, IX, XI, or XIII. Thus, the inventions are distinct and the restriction between these groups is proper.

9. Inventions of Group IX (process) and the product of either Groups I, III-V, X, or XII are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as the method of injection molding or any one of the methods from Groups II, VI-VIII, XI, or XIII. Thus, the inventions are distinct and the restriction between these groups is proper.

Art Unit: 1639

10. Inventions of Group XI (process) and the product of either Groups I, III-V, X, or XII are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as the method of injection molding or any one of the methods from Groups II, VI-IX, or XIII. Thus, the inventions are distinct and the restriction between these groups is proper.

11. Inventions of Group XIII (process) and the product of either Groups I, III-V, X, or XII are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as the method of robotic picking or any one of the methods from Groups II, VI-IX, or XI. Thus, the inventions are distinct and the restriction between these groups is proper.

12. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper. Furthermore, these inventions have acquired a

Art Unit: 1639

separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

13. This application contains claims directed to patentably distinct species of the claimed invention for Groups I-IV, VII, and VIII. Elections of species are required as follows.

14. ***If applicant elected the invention of Group I***, applicant is required to elect from the following patentably distinct species of a)-e):

- a) A ***single specific species*** of biologic material (e.g. see claims 11-15, 17, 115-118, and 121).
- b) Applicant is further required to elect ***if present*** more than one biologic material a ***single specific species*** of the number of additional biologic material ***and a single specific species*** of biologic material for ***each*** additional biologic material (e.g. see claims 18, 19, and 112).
- c) ***If present***, a ***single specific species*** of substrate (e.g. see claim 4).
- d) A ***single specific species*** of molecule (e.g. see claims 7-10).
- e) A ***single specific species*** 'type' of stabilizer (e.g. see claims 27-29).

The species are independent or distinct, each from the other, because they have different chemical structure and/or physiochemical properties and would be capable of separate manufacture and/or use. Moreover, the above species can be separately classified, and would necessitate different and separately burdensome manual and computer bibliographic and structure searches in both patent and non-patent areas.

Applicant is required under 35 U.S.C. 121 to elect *a single disclosed species* of the above species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claim 1 is generic.

15. *If applicant elected the invention of Group II*, applicant is required to elect from the following patentably distinct species of a)-b):

a) A *single specific species* of biologic material (e.g. see claims 36-40, and 42).

b) A *single specific species* of layer (e.g. see claim 43).

The species are independent or distinct, each from the other, because they have different chemical structure and/or physiochemical properties and would be capable of separate manufacture and/or use. Moreover, the above species can be separately classified, and would necessitate different and separately burdensome manual and computer bibliographic and structure searches in both patent and non-patent areas.

Applicant is required under 35 U.S.C. 121 to elect *a single disclosed species* of the above species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claim 30 is generic.

16. *If applicant elected the invention of Group III*, applicant is required to elect from the following patentably distinct species of a *single specific species* of high-density information (e.g. see claim 52).

The species are independent or distinct, each from the other, because they have different chemical structure and/or physiochemical properties and would be capable of separate

Art Unit: 1639

manufacture and/or use. Moreover, the above species can be separately classified, and would necessitate different and separately burdensome manual and computer bibliographic and structure searches in both patent and non-patent areas.

Applicant is required under 35 U.S.C. 121 to elect *a single disclosed species* of the above species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claim 46 is generic.

17. *If applicant elected the invention of Group IV*, applicant is required to elect from the following patentably distinct species of a)-e):

- a) A *single specific species* of substrate (e.g. see claim 54).
- b) A *single specific species* of biologic material (e.g. see claims 61-66).
- c) A *single specific species* of inorganic molecule (e.g. see claim 58).
- d) A *single specific species* of organic molecule (e.g. see claim 57).
- e) A *single specific species* 'type' of stabilizer (e.g. see claims 27-29).

The species are independent or distinct, each from the other, because they have different chemical structure and/or physiochemical properties and would be capable of separate manufacture and/or use. Moreover, the above species can be separately classified, and would necessitate different and separately burdensome manual and computer bibliographic and structure searches in both patent and non-patent areas.

Applicant is required under 35 U.S.C. 121 to elect *a single disclosed species* of the above species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claim 53 is generic.

Art Unit: 1639

18. ***If applicant elected the invention of Group VII***, applicant is required to elect from the following patentably distinct species of a ***single specific species*** of storage device (e.g. see claims 124 and 125).

The species are independent or distinct, each from the other, because they have different chemical structure and/or physiochemical properties and would be capable of separate manufacture and/or use. Moreover, the above species can be separately classified, and would necessitate different and separately burdensome manual and computer bibliographic and structure searches in both patent and non-patent areas.

Applicant is required under 35 U.S.C. 121 to elect ***a single disclosed species*** of the above species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claim 122 is generic.

19. ***If applicant elected the invention of Group VIII***, applicant is required to elect from the following patentably distinct species of a ***single specific species*** of light-emitting molecule (e.g. see claims 127 and 129).

The species are independent or distinct, each from the other, because they have different chemical structure and/or physiochemical properties and would be capable of separate manufacture and/or use. Moreover, the above species can be separately classified, and would necessitate different and separately burdensome manual and computer bibliographic and structure searches in both patent and non-patent areas.

Art Unit: 1639

Applicant is required under 35 U.S.C. 121 to elect *a single disclosed species* of the above species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claim 126 is generic.

20. Applicant is advised that *a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added.* An argument that a claim is allowable or that all claims are generic is considered *nonresponsive* unless accompanied by an election.

21. Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. *If claims are added after the election, applicant must indicate which are readable upon the elected species.* MPEP § 809.02(a).

22. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention. Because the above restriction/election requirement is complex, a telephone call to applicants to request an oral election was not made. See MPEP § 812.01.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and

Art Unit: 1639

specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

23. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to My-Chau T. Tran whose telephone number is 571-272-0810. The examiner can normally be reached on Monday: 8:00-2:30; Tuesday-Thursday: 7:30-5:00; Friday: 8:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew J. Wang can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1639

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

My-Chau T. Tran
March 13, 2006

A handwritten signature in black ink, appearing to be 'My-Chau T. Tran', written in a cursive style.